



WA-Trans Data Standards and Data Characteristics

**Created for the Washington
Transportation Framework for
GIS (WA-Trans) Project**

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1 Data Characteristics

The Washington Transportation Framework for GIS (WA-Trans) database is a collection of prioritized, spatially-referenced digital representations of broadly-defined transportation feature sets for Washington. The transportation framework theme is currently comprised of roads, railroads, address ranges, address points, reference points (nodes), trails, transportation structures, ferries, airports and ports (as points), light rail. For county road and state highways, it is comprised of traffic volumes, speed limits, federal functional class, surface types, and HOV lanes.

This document focuses primarily on the essential data elements necessary for the centralized statewide data sets and for the data submitted to WA-Trans from a Data Provider.

The WA-Trans database is capable of:

- Maintaining data with multiple geometries.
- Storing information necessary to maintain local – as well as state – linear referencing systems (LRS). For example, an LRS can be by address range and/or mile points. Both can be maintained.
- Maintaining a history of transportation framework data.

Research is ongoing to maintain feature-level metadata in the WA-Trans database.

The processes involved in obtaining and maintaining connected transportation data in WA-Trans requires the use of three related databases. These three databases are related, but do have some differences in design. This document reflects the database characteristics for all three database designs. There are attribution and design differences between the three databases, Loading, Staging and Production. If a field is not included in all three databases this will be indicated in the field descriptions. **Appendix A: Database Architecture**, includes a diagram and some detail regarding the different databases and their intended functions.

NOTE: This document includes WA-Trans database attribution to date and is subject to change.

1.1 Loading Database Exception: There is one major exception to the documentation of the Segment and Segment Geometry tables in this characteristics document. In the loading database the Segment and Segment Geometry tables are combined into one table. Segments are created when data is transferred from the Loading to the Staging database. See **Appendix C Loading Database** for details.

1.2 Multiple Geometries

The data model now allows multiple geometries per segment. This permits the storage of both linear referencing and geocoding line work and their associated internally-stored, digitized directions. Aside from helping with directionality issues, storing multiple geometries also allows greater flexibility to meet the needs of various business uses, such as E911, ITS, and demand modeling.

1.3 Directionality

“Segment End Point 1” and “Segment End Point 2” reference points are included in the “Segment” table to indicate segment directionality, typically the digitized direction. Routes and geocoding do not necessarily share the same directionality. Directionality for routes and addressing are indicated by “From” and “To” reference points stored in the “Route Description” and “Road Address Description” tables.

1.4 Routes

To build routes for event placement and export, we plan to:

- Associate the “From” and “To” measures with the reference points.
- Use the points to calibrate the routes.
- Use the "Set Direction as M" tool to switch direction of the sketch / segment / arc to be the same as the direction of the measure values.

This differs from the method traditionally used within WSDOT – the ArcToolbox 'Create Routes' tool, which is highly dependent on the internally-stored digitized direction.

1.5 Required Fields

If an attribute is considered “required” it will be preceded by the following: See Appendix A for database descriptions. These requirements are subject to change based on findings during the two pilot projects. *NOTE: A field can be included in all the databases yet only be required in one or more.*

- An **(L)** preceding the attribute name indicates a required field in the Loading database only.
- An **(S)** preceding the attribute name indicates a required field in the Staging database only.
- An **(P)** preceding the attribute name indicates a required field in the Production database only.
- Any combination of letters indicates a required field in more than one database; e.g. **(L, S)** required in Loading and Staging, **(S, P)**, required in Staging and Production.
- An **(R)** preceding the attribute name indicates a required field in all three WA-Trans databases.
- An * preceding the attribute name indicates there is note indicating in which database this attribute is included.

2 WA-Trans Attribution

This section includes complete attribution for the WA-Trans database. The data structure can be referenced in the WA-Trans Logical Data model, with the names in the left column directly related to the names in the model. Each entity is described at the top of the table.

- Column one is the logical attribute name.
- Column two is the data type.
- Column three is the description of the attribute.

2.1 Segment Data

Segment data core information is included in four tables: the Segment, Segment Geometry, Route Description and Road Address Description tables. All descriptions are tabular data. The segments are constructs of WA-Trans based on provider geometry.

2.1.1 Segment

Segment is a specified directed path between two framework transportation segment reference points along a physical transportation system, which identifies a unique segment of that physical system. Segments are a construct of WA-Trans processes based on provider data.

The *NSDI Framework Transportation Identification Standards* states that segments must not span State or international borders.

Attribute Full Name	Data Type	Description
(R) Segment Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Segment record within the database.
(R) Row Load Date	DATE	Date assigned to the segment that indicates when the segment data was loaded in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
(R) Original Submittal Date	DATE	The date this record was first submitted to and included in WA-Trans.
Segment Update Date	DATE	Date assigned to the segment that indicates when the segment data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Validate Date	DATE	Date assigned to the segment that indicates when the segment data was validated (verified) in the WA-Trans database. This date is updated when new data is submitted to WA-Trans using normal maintenance and provider submittal processes. Even if a record is not changed it will be validated.
Segment Retire Date	DATE	Date assigned to the record that indicates when the data was retired in the WA-Trans database. This date does not indicate any single provider road status.
(S,P) Status Identifier	INTEGER	Foreign Key into the Status Table.
(S,P) Segment End Point 1	CHAR (36)	Foreign Key into the Reference Point Table. One of two points used to indicate directionality of a segment. Segment End Point 1 is the beginning of a segment and Segment End Point 2 is the end.
(S,P) Segment End Point 2	CHAR (36)	Foreign Key into the Reference Point Table. One of two points used to indicate directionality of a segment. Segment End Point 1 is the beginning of a segment and Segment End Point 2 is the end.
(R) Data Steward Identifier	INTEGER	Foreign Key that relates to the entity, who is the Data Steward.
* Record Status Identifier	INTEGER	Foreign Key into the Status Table. * Only included in the Staging database.

2.1.2 Segment Geometry

Segment Geometry stores the segment geometry, allowing for multiple geometries within WA-Trans.

Attribute Full Name	Data Type	Description
(R) Segment Geometry Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Segment Geometry record within the database.
(R) OBJECTID	INTEGER	Identifier applied by GIS Software.
(R) SHAPE	INTEGER	Reference to the Geo-Spatial aspects of the data.
Segment Length	DECIMAL(10,3)	Linear measurement of the segment from one end point to the other as determined by the Data Provider. All measurements will be in US Survey Feet.
(R) Row Load Date	DATE	Date this record was loaded in a WA-Trans Database. This date is a WA-Trans process date. A "Process" date is used to help various data functions in WA-Trans e.g. Change detection, Change management, data QA/QC.
(R) Original Submittal Date	DATE	The date this record was first submitted to and included in WA-Trans.
Segment Geometry Update Date	DATE	Date assigned to the segment geometry that indicates when the data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Geometry Validate Date	DATE	Date assigned to the segment that indicates when the segment data was validated (verified) in the WA-Trans database. This date is updated when new data is submitted to WA-Trans using normal maintenance and provider submittal processes. Even if a record is not changed it will be validated.
Segment Geometry Retire Date	DATE	Date assigned to the segment geometry that indicates when the segment data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Physical Create Date	DATE	Date when the physical infrastructure, represented by the segment, was created / built. <u>This information comes from the provider.</u>
Segment Physical Inception Date	DATE	Date when the physical infrastructure, represented by the segment, was operational for use. <u>This information comes from the provider.</u>
Segment Physical Retire Date	DATE	Date when the physical infrastructure of the segment was removed from operational use. <u>This information comes from the provider.</u>
Provider Record Identifier	VARCHAR(9)	Unique identifier assigned by the Data Provider and used in their local systems. This identifier is stored in WA-Trans for reference to the original Data Provider attributes schema and used during the Change Detection process. This attribute can be formed using a combination of several provider attributes, resulting in a unique ID.
(R) Data Steward Identifier	INTEGER	Foreign Key that relates to the entity, who is the Data Steward.

Attribute Full Name	Data Type	Description
(S,P) Status Identifier	INTEGER	Foreign Key into the Status Table.
(R) Reference Data Set Id	INTEGER	Foreign Key into the Reference Data Set Table. Refers to the original source dataset.
(S,P) Segment Identifier	CHAR(36)	Foreign Key into the Segment Table that identifies the segment to which the geometry is related.
Horizontal Accuracy Measurement Method Identifier	INTEGER	Foreign Key identifier that relates to the table containing the horizontal accuracy and measurement method applicable to this segment.
Infrastructure Owner Identifier	INTEGER	Foreign Key that relates to the owner of the physical infrastructure.
Infrastructure Maintainer Identifier	INTEGER	Foreign Key that relates to the entity responsible for maintaining the physical infrastructure.
(S,P) From Reference Point Geometry Identifier	CAR(36)	Foreign Key into the Reference Point Table. One of two points used to indicate directionality of segment geometry. Segment End Point 1 is the beginning of a segment and Segment End Point 2 is the end.
(S,P) To Reference Point Geometry Identifier	CAR(36)	Foreign Key into the Reference Point Table. One of two points used to indicate directionality of segment geometry. Segment End Point 1 is the beginning of a segment and Segment End Point 2 is the end.
(S,P) Mode Type Identifier	INTEGER	Foreign Key from the Mode Type Table. Indicates the appropriate transportation mode for this record.
(L) * Geometry Change Detection Type	INTEGER	Identifies the type of change for the geometry characteristics of this record. * Only included in the Loading Database.
(L) * Attribute Change Detection Type	INTEGER	Identifies the type of change for the attribute characteristics of this record. * Only included in the Loading Database.
(S,P) * Previous Concatenated Geometry	VARCHAR(1000)	Concatenated form of all attribution for a Segment Geometry record. Used to determine the difference between the existing record and the previous record. * Only included in the Staging and Production database.
(L) * Matching Segment Geometry Identifier	CAR(36)	This attribute is used during change detection to identify segment geometry already in WA-Trans with incoming segment geometry from a data provider. If there is no matching segment geometry the assumption is: This is likely new segment geometry added by the provider since the last time their data was updated to WA-Trans. * Only included in the Loading database.
* Record Status Identifier	INTEGER	Foreign Key into the Status Table. * Only included in the Staging database.
* Preferred Geometry Identifier	INTEGER	Foreign Key into the Preferred Table. Indicates this is the preferred segment geometry for a specific use. It is possible that this record may be preferred for Address Geocoding and another for Routes and planning. Although not yet designed in the database it will be necessary to create a many-to-many relationship due to the probability there will be more than one preferred use for any single geometry. * Not included in Loading.

2.1.3 Route Description

Route Description is descriptive route data pertaining to segments. The initial intent is to store information regardless of mode type, while specific descriptive data for each mode is handled in separate mode description tables. Currently the only mode in this table is Road.

Attribute Full Name	Data Type	Description
Route Description Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Route Description record within the database.
Provider Record Identifier	VARCHAR(50)	Unique identifier assigned by the Data Provider and used in their local systems. This identifier is stored in WA-Trans for reference to the original Data Provider attributes schema and used during the Change Detection process. This attribute can be formed using a combination of several provider attributes, resulting in a unique ID.
(R) Route Description Local LRS Identifier	VARCHAR(15)	Identifier assigned to the Transportation Segment Description by Mode Data Steward. This identifier would be assigned to a set of segments constituting a route name and not be a unique identifier for an individual segment. Examples: County Road Number, City Street Name (Main St.), State Route Number (005), etc.
(R) Route Description Full LRS Description	VARCHAR(25)	Unique identifier of the LRS that assures a distinction between segments that may have the same Local Identifier; e.g., Main St. This attribute allows the creation of distinct routes when multiple providers are providing similar data. This field is created by WA-Trans concatenating the following fields together: <ul style="list-style-type: none"> • FIPS State Code (2 characters) • StakeholderId (4 characters ONLY) • ModeTypeId (2 characters only) • Local LRS Identifier (15 characters) (See "Segment Description Local LRS Identifier" above) <p>*SPECIAL NOTE: This schema requires / assumes the following:</p> <ul style="list-style-type: none"> • The Stakeholder specified will be the Owner of the physical infrastructure. • Leading zeros will be added to ID fields that are not yet 4 characters long (e.g., 1 becomes 0001, etc.). • We will have no more than 9999 Authorities, 99 Modes. <p>The entire structure of this field will be modified if higher numbers are needed.</p>
(R) Route Description Begin Mile Point	DECIMAL(6,3)	Mile point that describes the beginning of a segment as it relates to the segment description assigned by the Road Data Steward.
(R) Route Description End Mile Point	DECIMAL(6,3)	Mile point that describes the ending of a segment as it relates to the segment description assigned by the Road Data Steward.
Route Description Path Description	VARCHAR(255)	Description assigned to the segment by the Road Data Steward that describes the segment circumstances.
(R) Row Load Date	DATE	Date this record was loaded in a WA-Trans Database. This date is a WA-Trans process date. A "Process" date is used to help various data functions in WA-Trans e.g. Change detection, Change management, data QA/QC.

Attribute Full Name	Data Type	Description
(R) Original Submittal Date	DATE	The date this record was first submitted to and included in WA-Trans.
Route Description Update Date	DATE	Date assigned to Segment Description that indicates when the segment data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Route Description Validate Date	DATE	Date assigned to the segment that indicates when the segment data was validated (verified) in the WA-Trans database. This date is updated when new data is submitted to WA-Trans using normal maintenance and provider submittal processes. Even if a record is not changed it will be validated.
Route Description Retire Date	DATE	Date assigned to the Segment Description that indicates when the segment data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Route Description Local Length	DECIMAL (10,3)	Linear measurement of the segment from one end point to the other as determined by the Data Steward. All measurements will be in US Survey Feet.
(R) Segment Identifier	CHAR(36)	Foreign Key into the Segment Table that identifies the segment to which this description pertains.
Unit of Measure Identifier	INTEGER	Foreign Key into the Unit of Measure Table. Identifies the unit of measure used by the local Data Steward.
State Identifier	VARCHAR (2)	Federal Information Processing Standard number that identifies the State where the data originated.
Left County Identifier	VARCHAR (3)	Federal Information Processing Standard number that identifies the county to the <i>left</i> of the line segment.
Right County Identifier	VARCHAR (3)	Federal Information Processing Standard number that identifies the county to the <i>right</i> of the line segment.
Left City Identifier	VARCHAR (5)	Federal Information Processing Standard number that identifies the city to the <i>left</i> of the line segment.
Right City Identifier	VARCHAR (5)	Federal Information Processing Standard number that identifies the city to the <i>right</i> of the line segment.
Length Accuracy Measurement Method Identifier	INTEGER	Foreign Key into the Length Accuracy Measurement Table that explains the method of data capture.
(R) Data Steward Identifier	INTEGER	Foreign Key into the Stakeholder Table that identifies the Data Steward of the data and other related information.
(S,P) To Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the "To" reference point of this description record.
(S,P) To Reference Point Type Identifier	INTEGER	Foreign Key into the Reference Point Type Table Indicates the nature of this record. E.g. Agreement point, Intersection (within a mode), secondary point, transportation terminal.
(S,P) From Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the "From" reference point of this description record.
(S,P) From Reference Point Type Identifier	INTEGER	Foreign Key into the Reference Point Type Table Indicates the nature of this record. E.g. Agreement point, Intersection (within a mode), secondary point, transportation terminal.

Attribute Full Name	Data Type	Description
(S,P) To Segment Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the “To” reference point of a line segment this record is associated with.
(S,P) From Segment Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the “From” reference point of a line segment this record is associated with.
(R) Status Identifier	INTEGER	Foreign Key into the Segment Status Table.
(R) Reference Data Set Identifier	INTEGER	Foreign Key into the Reference Data Set Table. Refers to the original source dataset.
(S,P) Mode Type Identifier	INTEGER	Foreign Key from the Mode Type Table. Indicates the appropriate transportation mode for this record.
LRS Collection Identifier	INTEGER	Foreign Key into the LRS Collection Table. Refers to the Route collection this LRS is related to. (E.g. State Route LRS, Mobility LRS, Local LRS).
* Sequence Number	INTEGER	A number, which can be used to order the segments for a particular route. * Not included in the Loading Database.
(S,P) * Previous Concatenated Route Description	VARCHAR(1000)	Concatenated form of all attribution for a Route Description record. Used to determine the difference between the existing record and the previous record. * Only included in the Staging and Production database.
* Matching Route Description Identifier	CHAR(36)	This attribute is used during change detection to identify a segment already in WA-Trans with an incoming segment from a data provider. If there is no matching segment the assumption is: This is likely a new segment added by the provider since the last time their data was updated to WA-Trans. * Only included in the Loading database.
* Change Detection Type	INTEGER	Foreign Key into the Change Detection Type Table This attribute is used during change detection to identify the type of change. The possibilities include: Unmodified, Modified, New, Missing. (See Change Detection Type Tables for details of this domain). \
* Preferred Identifier	INTEGER	Foreign Key into the Preferred Table. Indicates this is the preferred record for a specific use. There are expected to be many descriptions associated with any given segment geometry. It is possible only one will be the preferred record for a specific use. Although not yet designed in the database it will be necessary to create a many-to-many relationship due to the probability there will be more than one preferred use for any record. * Not included in Loading.
* Record Status Identifier	INTEGER	Foreign Key into the Status Table. * Only included in the Staging database.

2.1.4 Road Address Description

Road Address Description is descriptive “address range” data pertaining to road segments.

Attribute Full Name	Data Type	Description
(R) Road Address Description Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Road Address Description Road record within the database.
(R) Provider Record Identifier	VARCHAR(50)	Unique identifier assigned by the Data Provider and used in their local systems. This identifier is stored in WA-Trans for reference to the original Data Provider attributes schema and used during the Change Detection process. This attribute can be formed using a combination of several provider attributes, resulting in a unique ID.
(R) Road Address Full Street Name	VARCHAR(125)	Concatenation of the following fields in the order listed: Prefix Direction, Prefix Type, Road Name, Suffix Type, Suffix Direction
Road Address Alternate Name Flag	BOOLEAN	Indicates if the Description record is an alternate 'common' name as opposed to an official name given by the owner of the segment.
(R) Road Address Left Low Address	VARCHAR(10)	Describes the left low address of a road segment as it relates to the Road Segment Description assigned by the Road Data Steward.
(R) Road Address Left High Address	VARCHAR(10)	Describes the left high address of a road segment as it relates to the Road Segment Description assigned by the Road Data Steward.
(R) Road Address Left Zip Code	VARCHAR(10)	Zip code of address to the left of the line segment.
(R) Road Address Right Low Address	VARCHAR(10)	Describes the right low address of a road segment as it relates to the Road Segment Description assigned by the Road Data Steward.
(R) Road Address Right High Address	VARCHAR(10)	Describes the right high address of a road segment as it relates to the Road Segment Description assigned by the Road Data Steward.
(R) Road Address Description Right Zip Code	VARCHAR(10)	Zip code of address to the right of the line segment.
(R) Road Address Name Prefix Direction	VARCHAR(10)	N, NW, S, SW, SE, E, NE
(R) Road Address Name Prefix Type	VARCHAR(15)	It is used to describe the road direction if incorporated into the beginning of the road name. N, NW, S, SW, SE, E, NE (e.g., SW Main Street).
(R) Road Address Name	VARCHAR(50)	Name of the road.
(R) Road Address Name Suffix Type	VARCHAR(15)	Type of roadway, per US Postal Addressing Standards. Avenue, Street, Lane, Highway, Road, etc.
(R) Road Address Name Suffix Direction	VARCHAR(10)	It is used to describe the road direction if incorporated into the end of the road name. N, NW, S, SW, SE, E, NE (e.g., Main St. SW)
(R) Row Load Date	DATE	Date this record was loaded in a WA-Trans Database. This date is a WA-Trans process date. A “Process” date is used to help various data functions in WA-Trans e.g. Change detection, Change management, data QA/QC.

Attribute Full Name	Data Type	Description
(R) Original Submittal Date	DATE	The date this record was first submitted to and included in WA-Trans.
Road Address Update Date	DATE	Date assigned to the Segment Description Road that indicates when the segment data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Road Address Validate Date	DATE	Date assigned to the segment that indicates when the segment data was validated (verified) in the WA-Trans database. This date is updated when new data is submitted to WA-Trans using normal maintenance and provider submittal processes. Even if a record is not changed it will be validated.
Road Address Retire Date	DATE	Date assigned to the Segment Description Road that indicates when the segment data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
State Identifier	VARCHAR (2)	Federal Information Processing Standard number that identifies the State where the data originated.
Left County Identifier	VARCHAR (3)	Federal Information Processing Standard number that identifies the county to the <i>left</i> of the line segment.
Right County Identifier	VARCHAR (3)	Federal Information Processing Standard number that identifies the county to the <i>right</i> of the line segment.
Left City Identifier	VARCHAR (5)	Federal Information Processing Standard number that identifies the city to the <i>left</i> of the line segment.
Right City Identifier	VARCHAR (5)	Federal Information Processing Standard number that identifies the city to the <i>right</i> of the line segment.
(S,P) To Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the "To" reference point of this description record.
(S,P) To Reference Point Type Identifier	INTEGER	Foreign Key into the Reference Point Type Table Indicates the nature of this record. E.g. Agreement point, Intersection (within a mode), secondary point, transportation terminal.
(S,P) From Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the "From" reference point of this description record.
(S,P) From Reference Point Type Identifier	INTEGER	Foreign Key into the Reference Point Type Table Indicates the nature of this record. E.g. Agreement point, Intersection (within a mode), secondary point, transportation terminal.
(S,P) To Segment Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the "To" reference point of a line segment this record is associated with.
(S,P) From Segment Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the "From" reference point of a line segment this record is associated with.
(R) Data Steward Identifier	INTEGER	Foreign Key relating to the entity that is the Data Steward.
(R) Status Identifier	INTEGER	Foreign Key into the Segment Status Table.
(R) Segment Identifier	CHAR(36)	Foreign Key into the Segment Table. It identifies the segment associated with the road address description.
(R) Reference Data Set	INTEGER	Foreign Key into the Reference Data Set Table. Refers to the original

Attribute Full Name	Data Type	Description
Identifier		source dataset.
(S,P) * Previous Concatenated Road Address	VARCHAR(1000)	Concatenated form of all attribution for Road Address record. Used to determine the difference between the existing record and the previous record. * Only included in the Staging and Production database.
* Matching Road Address Description Identifier	CHAR(36)	This attribute is used during change detection to identify a segment already in WA-Trans with an incoming segment from a data provider. If there is no matching segment the assumption is: This is likely a new segment added by the provider since the last time their data was updated to WA-Trans. * Only included in the Loading database.
* Change Detection Type	INTEGER	Foreign Key into the Change Detection Type Table This attribute is used during change detection to identify the type of change. The possibilities include: Unmodified, Modified, New, Missing. (See Change Detection Type Tables for details of this domain). \
* Preferred Identifier	INTEGER	Foreign Key into the Preferred Table. Indicates this is the preferred record for a specific use. There are expected to be many descriptions associated with any given segment geometry. It is possible only one will be the preferred record for a specific use. Although not yet designed in the database it will be necessary to create a many-to-many relationship due to the probability there will be more than one preferred use for any record. * Not included in Loading.
* Record Status Identifier	INTEGER	Foreign Key into the Status Table. * Only included in the Staging database.

2.1.5 Preferred

Preferred identifies the value of a record for a specific use. For instance there are expected to be many descriptions associated with any given segment geometry. It is possible a specific geometry and one associated description will be the preferred record combination for use in routing. Although not yet designed in the database it will be necessary to create a many-to-many relationship due to the probability there will be more than one preferred use for any record. This becomes more important as more descriptions of any one segment geometry are added, or there is a dual and single representation of the roadway.

Attribute Full Name	Data Type	Description
(R) Preferred Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a status.
Preferred Name	VARCHAR(20)	Short name of the domain
Preferred Description	VARCHAR(100)	Description of the preferred domain

2.1.6 LRS Collection

LRS Collection identifies the LRS the Route Description record is associated with. Currently in WA-Trans there are records for a “State Route LRS” (24K LRS), “Mobility LRS” (CRAB LRS) and the “All Public Roads” LRS (APR LRS).

Attribute Full Name	Data Type	Description
(R) LRS Collection Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a status.
(R) LRS Collection Description	VARCHAR(15)	Name of the LRS Collection
(R) Data Steward Identifier	INTEGER	Foreign Key into the Stakeholder Table.

2.2 Points / Nodes

Points in this set of tables can be used for identifying segment ends and where descriptions begin and end. It is possible to include point features like transportation terminals as well. These tables are not intended to contain points as event data even though the design would likely permit this type of use.

2.2.1 Reference Point

This table is used as reference to basic tabular information about a point without the geometry. Each point is related to it's geometry and with the ability to be related to more than one geometry.

Attribute Full Name	Data Type	Description
(R) Reference Point Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a record within the database.
(R) Row Load Date	DATE	Date this record was loaded in a WA-Trans Database. This date is a WA-Trans process date. A “Process” date is used to help various data functions in WA-Trans e.g. Change detection, Change management, data QA/QC.
(R) Original Submittal Date	DATE	The date this record was first submitted to and included in WA-Trans.
Reference Point Update Date	DATE	Date assigned to a reference point that indicates when the Road Reference Point data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Validate Date	DATE	Date assigned to a reference point that indicates when the Road Reference Point data was validated (verified). This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Retire	DATE	Date assigned to a reference point that indicates when the Road

Attribute Full Name	Data Type	Description
Date		Reference Point data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Agreement Identifier	INTEGER	Foreign Key into the Reference Point Agreement Table. Refers to the Agreement Point information. The Agreement Point process ensures connectivity between jurisdictions.
(R) Reference Point Data Steward Identifier	INTEGER	Foreign Key into the Stakeholder Table.
(R) Status Identifier	INTEGER	Foreign Key into the Status Table. Domain (e.g., Operational, Retired, Proposed, Closed)
* Record Status Identifier	INTEGER	Foreign Key into the Status Table. * Only included in the Staging database.

2.2.2 Reference Point Geometry

The term *reference point* has several meanings:

- A specified location of the required points (From / To) of a framework transportation segment (FTSeg).
- The optional reference point offset along the length of the FTSeg on a physical transportation system.
- A zero-dimensional object that specifies the geometric location.

A pair (e.g., "x, y") or triplet (e.g., "x, y, z") of coordinates specifies the location or SDTS.

A reference point includes the location of transportation terminals, such as airports, train stations, and ferry terminals.

Attribute Full Name	Data Type	Description
(R) Reference Point Geometry Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a record within the database.
(R) OBJECTID	INTEGER	Identifier applied by GIS Software.
(R) SHAPE	INTEGER	Reference to the Geo-Spatial aspects of the data.
(R) Primary Flag	BOOLEAN	Indicates this is the preferred reference point. Other reference points can be included in the database, but will be considered alternatives, not preferred.
(R) Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table. Maintains the relationship of data between the Reference Point and the Reference Point Geometry tables.
Reference Point Survey Description	VARCHAR(255)	Narrative pertaining to the survey performed on the reference point.

Attribute Full Name	Data Type	Description
Reference Point Location Description	VARCHAR(255)	Unambiguous description of the reference point that makes it field recoverable (FW-Location Description).
Reference Point Northing	DECIMAL(10,3)	Distance northward of a point from a given parallel, indicated by a map grid reference and calculated in US Survey Feet. Can be viewed as the local Y coordinate.
Reference Point Easting	DECIMAL(10,3)	Distance eastward of a point from a given meridian, indicated by a map grid reference and calculated in US Survey Feet. Can be viewed as the local X coordinate.
(R) Row Load Date	DATE	Date this record was loaded in a WA-Trans Database. This date is a WA-Trans process date. A "Process" date is used to help various data functions in WA-Trans e.g. Change detection, Change management, data QA/QC.
(R) Original Submittal Date	DATE	The date this record was first submitted to and included in WA-Trans.
Reference Point Geometry Update Date	DATE	Date assigned to a reference point that indicates when the Road Reference Point data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Geometry Validate Date	DATE	Date assigned to a reference point that indicates when the Road Reference Point data was validated (verified). This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Geometry Retire Date	DATE	Date assigned to a reference point that indicates when the Road Reference Point data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
(R*) State Identifier	VARCHAR(2)	Federal Information Processing Standard number that identifies the State where the data originated. This data is required for terminal or station information. WA-Trans uses the FIPS alpha, not the FIPS number identifier.
(R*) County Identifier	VARCHAR(3)	Federal Information Processing Standard number that identifies the County where the data originated. This data is required for terminal or station information. The FIPS county codes are three characters to maintain the leading zeros in the number. These codes are unique <i>only</i> within a particular state.
City Identifier	VARCHAR(5)	Federal Information Processing Standard number that identifies the city with which the reference point is identified. These codes are assumed to be unique only within a state.
Horizontal Accuracy Measurement Method Identifier	INTEGER	Foreign Key into the Horizontal Accuracy Measurement Method Table.
(R) Data Steward Identifier	INTEGER	Foreign Key into the Stakeholder Table.

Attribute Full Name	Data Type	Description
(R) Status Identifier	INTEGER	Foreign Key into the Status Table. Domain (e.g., Operational, Retired, Proposed, Closed)
(R) Reference Data Set Id	INTEGER	Foreign Key into the Reference Data Set Table. Refers to the original source dataset.

2.2.3 Reference Point Address

Reference Point Address allows address points and multiple addresses for a given reference point.

Attribute Full Name	Data Type	Description
(R) Reference Point Address Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a record within the database.
(R) Row Load Date	DATE	Date this record was loaded in a WA-Trans Database. This date is a WA-Trans process date. A "Process" date is used to help various data functions in WA-Trans e.g. Change detection, Change management, data QA/QC.
(R) Original Submittal Date	DATE	The date this record was first submitted to and included in WA-Trans.
Reference Point Address Update Date	DATE	Date assigned to the Reference Point Address that indicates when the Road Reference Point Address data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Address Validate Date	DATE	Date assigned to the Reference Point Address that indicates when the Road Reference Point Address data was validated (verified) in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Address Retire Date	DATE	Date assigned to the Reference Point Address that indicates when the Road Reference Point Address data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
(R) Reference Point Address	VARCHAR(10)	Street Address. This data required for terminal or station information.
(R) Primary Flag	BOOLEAN	Indicates this is the preferred Reference Address Point. Other reference point addresses can be included in the database, but they will be considered alternatives, not preferred.
(R) Provider Record Identifier	VARCHAR(9)	Unique identifier assigned by the Data Provider and used in their local systems. This identifier is stored in WA-Trans for reference to the original Data Provider attributes schema.
Reference Point Address Prefix Direction	VARCHAR(10)	N, NW, S, SW, SE, E, NE

Attribute Full Name	Data Type	Description
Reference Point Address Prefix Type	VARCHAR(15)	It is used to describe the road direction if it is incorporated into the beginning of the road name. N, NW, S, SW, SE, E, NE (e.g., SW Main Street).
Reference Point Address Road Name	VARCHAR(50)	Name of the road, usually the name of the street or road without the prefix and suffix information.
Reference Point Address Suffix Direction	VARCHAR(10)	It is used to describe the road direction if it is incorporated into the end of the road name. N, NW, S, SW, SE, E, NE (e.g., Main St. SW)
Reference Point Address Suffix Type	VARCHAR(15)	Type of roadway, per US Postal Addressing Standards. Avenue, Street, Lane, Highway, Road, etc.
Reference Point Zip Code	VARCHAR(10)	Associated zip code. This data is required for terminal or station information.
Reference Point Full Street Name	VARCHAR(125)	Concatenation of the following fields in the order listed: Prefix Direction, Prefix Type, Road Name, Suffix Type, Suffix Direction, or the Full Street Name as described by the Data Provider. This data is required for terminal or station information.
Reference Point Address City Name	VARCHAR(60)	Name of the City used in the address. This may or may not be the City identified by the FIPS City Identifier.
Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table.
Reference Point Airport Identifier	CHAR(36)	Foreign Key into the Reference Point Airport Table.
Reference Point Ferry Identifier	CHAR(36)	Foreign Key into the Reference Point Ferry Table.
Reference Point Rail Identifier	CHAR(36)	Foreign Key into the Reference Point Rail Table.
(R) Data Steward Identifier	INTEGER	Foreign Key into the Stakeholder Table.
(R) Status Identifier	INTEGER	Foreign Key into the Status Table. Domain (e.g., Operational, Retired, Proposed, Closed)
(R) Reference Data Set Id	INTEGER	Foreign Key into the Reference Data Set Table. Refers to the original source dataset.

2.2.4 Reference Point Type

Reference Point Type defines the nature of a discrete geographic location. Possible values include, but are not limited to:

- Transportation Terminal
- Intersection (within a mode)
- Multi-Modal Intersection (intersection of one mode with a different mode)
- Agreement Point

Attribute Full Name	Data Type	Description
Reference Point Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Reference Point Type record within the database.
(R) Reference Point Type Name	VARCHAR(50)	Code that identifies the type of reference point.
(R) Reference Point Type Description	VARCHAR(500)	Description of the type of reference point as noted above.

2.2.5 Point Reference Point Type

Point Reference Point Type is used to assign more than one Point Type to any Reference Point. It is a goal if WA-Trans to reduce the duplication of points as much as possible. To this end there will be only one point at any location. At any location it is possible for a point to have more than one meaning. For example a point may be an at grade intersection for two roads, an intersection of a bike trail and the road and an agreement point between two jurisdictions.

Attribute Full Name	Data Type	Description
(R) Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table.
(R) Reference Point Type Identifier	INTEGER	Foreign Key into the Reference Point Type Table.
(R) Point Reference Point Type Description	VARCHAR(50)	A description of the relationship between the assigned point type and this reference point.

2.2.6 Reference Point Mode Type

Reference Point Mode Type is a way to apply a different meaning and use depending on the transportation mode and WA-Trans data sharing processes. A reference point may also have different importance to different modes.

An example is where a bike lane or ally joins a road segment. Depending on need it may or may not be desirable to break a segment in this instance. This point is important for the bike lane, or ally, as it is the end point for the segment and does intersect the road creating an intersection. In many instances, for the road, this may only be a point of interest, or ignored and not defined as an intersection breaking a segment.

Attribute Full Name	Data Type	Description
(R) Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table.
(R) Mode Type Identifier	INTEGER	Foreign Key into the Reference Point Type Table.
(R) Reference Point Mode Description	VARCHAR(50)	A description of the relationship between the assigned mode and this point.

2.2.7 Reference Point Agreement

Reference Point Agreement is an agreement between two parties who possess overlapping data sets and share data boundaries over the location of shared map features. The agreement documentation related to the Agreement Point process is referred to here.

Attribute Full Name	Data Type	Description
(R) Reference Point Agreement Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Reference Point Agreement record within the database.
(R) Reference Point Agreement Document Description	VARCHAR (255)	A record that describes the Spatial Agreement between entities. This document is based on the Agreement Point process and details the agreement, not necessarily including all the technical details.

2.2.8 Agreement Data Steward

Agreement Data Steward table maintains the relationship between jurisdictions and their agreement on the points connecting the transportation network between each others systems. Information in this table identifies the stakeholders with the agreement reached during the WA-Trans Agreement Point process. The Agreement Point process will involve two or more jurisdictions.

Attribute Full Name	Data Type	Description
(R) Agreement Data Steward Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a record within the database.

Attribute Full Name	Data Type	Description
(R) Data Steward Identifier	INTEGER	Foreign Key that identifies the Stakeholder to which the agreement belongs. An agreement is usually associated with at least two jurisdictions.
(R) Reference Point Agreement Identifier	INTEGER	Foreign Key that identifies the Agreement.

2.3 Look Up and Supporting Data

It is necessary ensure data in WA-Trans represents what has been submitted by a provider. Lookup data is needed to support the original meaning of the data and support data processing within the WA-Trans database. There exists in the WA-Trans databases a variety of lookup tables and tables storing necessary metadata. These lookup data relationships are identified in the tables in this document as Foreign Key information.

2.3.1 Stakeholder

Stakeholder is any organization that takes responsibility for proposing, designating, or working in partnership with other organizations to build and maintain – or to make decisions about – the actual physical infrastructure, which defines the FTRP and FTSeg or data being submitted to WA-Trans. The stakeholder may be the owner of the physical infrastructure (PI), the maintainer of the PI, or the owner, provider, maintainer, or contributor of the data being submitted to WA-Trans (all of which can differ from the PI owner).

A stakeholder, in the context of the WA-Trans Data User Portal is a User of the data. This relationship is maintained by Foreign Key constraints in the WA-Trans Contact, Portal and Translation tables.

The term “stakeholder” can included any organization that interacts with the WA-Trans System in one of the following ways. The names in the list below will be represented as Foreign Keys using the listed names (the exception is the User which is names Stakeholder Identifier:

- Infrastructure Owner** Entity or organization that owns the physical infrastructure recorded within the WA-Trans System. It makes decisions about its planning, design, construction or maintenance. The owner could also delegate planning, design, construction, or maintenance responsibilities to a third party.

In addition, an owner could be the entity that legally owns – and has legal authority and responsibility over – the data being submitted to WA-Trans (i.e., the one who has legal authority to make decisions regarding the data that represents the physical infrastructure). In this case, the owner could also be the Data Steward. An example of an owner might be a larger entity, such as a state government agency, county, or municipal / city government.
- Infrastructure Maintainer** Entity responsible for maintaining any part of the physical infrastructure for which data is recorded in the WA-Trans System. This entity may be different from the owner.

An example in this case could be a state route that passes through a city, and an agreement between WSDOT and the city stipulates that the city

is responsible for maintaining that portion of the state route. In this case, WSDOT is the owner, but the city is the PI maintainer.

- **Data Maintainer**

Entity that has the legal authority to make changes, edits, updates or alterations to the data that is provided to the WA-Trans system. This could be the same as the Owner or Steward, but it could also be a department, group, or individual(s) to which the Owner or Steward has delegated data editing/creation responsibilities. The data in question could be a portion of a data set that comprises of GPS collected line segments, points or a group of data, or an entire data set that the Data Steward is mandated to submit based on the signed DSA.

This definition can be extended to an external third party working with – and on behalf of – the Owner, Steward, or User (e.g., a Contractor or Consultant).

The Data Maintainer could also be the entity that is responsible for providing QA/QC to the data sets plus ensuring that the metadata are current, the specifics of which will be based on the negotiated data sharing agreements between WA-Trans and the entity that has ultimate authority over the data.

In short, the Data Maintainer is the entity that works directly with the data and in all likelihood either is, or reports to, the Data Steward. The Data Maintainer will ultimately be the “contact” that will have the most detailed knowledge about the data, and information pertaining to the Data Maintainer will be tracked through the metadata submitted to WA-Trans. An example of a Data Maintainer might be a state, county or municipal/city government’s department that handles geographic services.

- **Data Steward**

Entity that has legal authority to provide data – or to ensure that data is provided – to WA-Trans. If the Data Steward is the same as the owner, he/she may also have the legal authority to make all decisions pertaining to the data. The data in question could be a portion of a data set comprised of GPS collected line segments, points, a group of data, or an entire data set that the Data Steward is mandated to submit based on the signed DSA.

The Data Steward may also be the entity responsible for providing QA / QC to the data sets, ensuring that the metadata are current or delegating this responsibility to a third party (i.e. the Data Maintainer). The specifics of these duties will be based on the negotiated data sharing agreements between WA-Trans and the entity that has ultimate authority over the data. An example of a Data Steward might be a government department or person who is responsible for managing that entity’s geographic data, which must be the best available source.

- **User**

Organization that does not participate in defining FTRP and FTSeg, and that does not contribute data to WA-Trans but who may wish to use the WA-Trans data.

Attribute Full Name	Data Type	Description
(R) Stakeholder Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Stakeholder record within the database.
(R) Stakeholder Short Name	VARCHAR(6)	Standard acronym used for the organization. Example: WSDOT is the short name for Washington State Department of Transportation.
(R) Stakeholder Name	VARCHAR(60)	Actual name of the stakeholder who has decision rights over particular data.
Stakeholder Description	VARCHAR(300)	Describes who the Stakeholder is and what the Stakeholder does.
(R) Stakeholder Create Date	DATE	Date when the stakeholder record was entered into the database.
(R) Stakeholder Active Flag	INTEGER	Indicates if the Stakeholder is one that has current access to participate in WA-Trans. An example where a stakeholder may become inactive is a City has un-incorporated and is no longer a legal entity. This field will track such entities in the database.
Stakeholder Alternate Identifier	VARCHAR(15)	Alternate identifier for a stakeholder, possibly to allow interaction with their systems.
Stakeholder Alternate Identifier Description	VARCHAR(100)	Description of the alternate identifier and its purpose.
Organization Flag	BOOLEAN	This flag is used in the data user portal to indicate an Organization. A user is able to assign them selves to an Organization in the data user portal. Defaults to "False"

2.3.2 Reference Data Set

Reference Data Set contains data pertaining to a dataset submitted to WA-Trans. Relationships are maintained to access information in other tables pertaining to submitted files and data provider information.

Attribute Full Name	Data Type	Description
Reference Data Set Id	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Data Set or Translation record within the database.
(R) Submittal Date	DATE	Indicates the date the data was submitted to WA-Trans.
Content Begin Date	DATE	Begin date for the contents of this record.
Content End Date	DATE	End date for the contents of this record.
(R) Data Steward Identifier	INTEGER	Foreign Key into the Stakeholder Table.

Attribute Full Name	Data Type	Description
Data Submittal Agreement Identifier	INTEGER	Foreign Key into the Data Submittal Agreement Table. This relationship will access detailed information about the data provider data being submitted.

2.3.3 Status

Status contains data pertaining to the current operations state: operational, retired, proposed or closed roads. There are other possible status data that has been identified, but not entered into the domain at this time.

Attribute Full Name	Data Type	Description
Status Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a status.
(R) Status Name	CHAR(25)	Name value indicating the nature of the transportation segment for use for the network. O-operational; R-retired; P-proposed; C-closed
(R) Status Description	VARCHAR (500)	Description of the Single Character Status Name. O-operational; R-retired; P-proposed; C-closed

2.3.4 Mode Type

Mode Type describes the nature of the segment in question. Examples include: Road, Heavy Rail, Light Rail, Ferry, Non-Motorized, Aviation and Water Port.

Attribute Full Name	Data Type	Description
Mode Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Mode Type record within the database.
(R) Mode Type Name	VARCHAR (25)	Name commonly used to refer to a method of transportation (e.g., Road, Heavy Rail, Light Rail, Ferry, Non-Motorized, Aviation, and Water Port, etc.).
(R) Mode Type Description	VARCHAR (500)	Description of the Mode Type as noted above.

2.3.5 Change Detection Type

Change Detection Type values are assigned during the Change Detection Process. A Change Detection Type value is assigned as changes are detected between data newly provided, when compared to a previous data submittal. This value is used to determine what to process to perform on that particular record. Possible values currently include: Unmodified, Modified, New, or Missing. Missing indicates that a record from the previous submittal was not detected in this more recent data submittal.

Attribute Full Name	Data Type	Description
Change Detection Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Change Detection Type.
(R) Change Detection Type Description	VARCHAR (50)	Description of the Single Character Status Name. O-operational; R-retired; P-proposed; C-closed

2.3.6 Provider Location Codes

Provider Location Codes list the values used to identify locations such as Cities in a providers system and relates those codes to more standard codes for those locations, like FIPS, GNIS and WSDOT city codes. City codes are the focus at this time. This mapping will be used during translation of provider data into WA-Trans.

Attribute Full Name	Data Type	Description
Provider Location Code Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Change Detection Type.
Provider Location Code	VARCHAR (10)	Code used in the providers system to identify a location, specifically a City. E.g. AB=Auburn, FX= Fox Island
Provider Location Name	VARCHAR (100)	Name of the Location/City
GNIS Code	INTEGER	GNIS Code if available. WSDOT does not currently store GNIS Codes and when they do we will default to the WSDOT managed common tables to obtain this data.
WSDOT City Key	INTEGER	Foreign key to the WSDOT City table. WSDOT has a set of common table that can be used by all databases. E.g. state, city, county.
(R) Data Steward Identifier	INTEGER	Foreign key to the Stakeholder table identifying the provider associated with these location codes.

2.3.7 Horizontal Accuracy Measurement Method

Horizontal Accuracy Measurement Method contains data pertaining to the horizontal accuracy and measurement method of a reference point. This provides the ability to include metadata of this type at a feature level.

Attribute Full Name	Data Type	Description
Horizontal Accuracy Measurement Method Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Horizontal Accuracy Measurement Method record within the database.
(R) Horizontal Accuracy Measurement Method Code	CHAR(3)	3-character code that describes the derivation of the horizontal position. It allows the user to assess the accuracy and precision of the point's x, y position (FW-Horizontal-Accuracy-Measurement-Method).
(R) Horizontal Accuracy Measurement Method Code Description	VARCHAR(255)	Narrative description of the 3-character code that describes the derivation of the horizontal position. It allows the user to assess the accuracy and precision of the point's x, y position (FW-Horizontal-Accuracy-Measurement-Method).
(R) Horizontal Accuracy Measurement Method Datum Description	VARCHAR(255)	Description of the datum that was being used during the capture and creation of the original data.
(R) Horizontal Accuracy Measurement Method Projection Description	VARCHAR(100)	Description of the projection that was being used during the capture and creation of the original data.

2.3.8 Length Accuracy Measurement Method

Length Accuracy Measurement Method contains data pertaining to the length accuracy and measurement method of a segment.

Attribute Full Name	Data Type	Description
Length Accuracy Measurement Method Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Length Accuracy Measurement Method record within the database.
(R) Length Accuracy Measurement Method Code	CHAR(3)	3-letter code assigned to the method of data capture.
(R) Length Accuracy Measurement Method Code Description	VARCHAR(100)	Narrative description of the 3-character code that describes the derivation of the Length Accuracy position. It allows the user to assess the accuracy and precision of the point's x, y position (FW-Length-Accuracy-Measurement-Method).

2.4 Contact Information

2.4.1 Contact

Contact contains information about a person and their relationship to an organization or data provider. This data can be applied to Metadata Files, Provider Profiles, User Accounts, or other processes in WA-Trans. This table is referred to in other tables containing other related contact information.

Attribute Full Name	Data Type	Description
(R) Contact Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Contact record within the database.
(R) Contact First Name	VARCHAR(50)	First name of the contact.
Contact Middle Name	VARCHAR(50)	Middle name or initial of the contact.
(R) Contact Last Name	VARCHAR(50)	Last name of the contact.
(R) Contact Job Title	VARCHAR(75)	Job title of the person who is the contact.
Contact Login Name	VARCHAR(10)	The Login Name a User enters in the Data User Portal, or a WA-Trans enters for a data provider.
Contact Password	VARCHAR(15)	The Password a User enters/maintains in the Data User /Data Provider Portal, or WA-Trans enters for a data provider.
Is Data Provider	BOOLEAN	Identifies a person as a data provider. This must be True before this contact can access the Data Provider Portal.
(R) Contact Type Identifier	INTEGER	Foreign Key from the Contact Type Table. Indicates the Contact Type. (Domain examples: Data User, Data Provider, one of the metadata contacts)

2.4.2 Contact Type

Contact Type determines what function the person performs in relation to their organizations participation in WA-Trans processes. For instance who would WA-Trans need to contact regarding WA-Trans processes, either technical or administrative? (Domain examples: Data User, Data Provider Technical, Data Provider Administrator, Metadata Data Steward, Metadata Publisher, Stakeholder Contact.)

Attribute Full Name	Data Type	Description
(R) Contact Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Contact Type record within the database.
(R) Contact Type Name	VARCHAR(50)	Contact short text used in application displays, reports etc.
(R) Contact Type Description	VARCHAR(300)	Detailed description of the contact type. Should include where it is most likely used and why.

2.4.3 Reference Data Set Contact

Reference Data Set Contact is a table used to determine the primary contact for a dataset submitted to WA-Trans. This could be a technical contact as opposed to the administrative contact for an organization, such as the Stakeholder Contact. It is assumed there can be more than one contact for a stakeholder and for a dataset.

Attribute Full Name	Data Type	Description
(R) Reference Data Set Identifier	INTEGER	Foreign Key from the Reference Data Set Table. This is one of two FK attributes and when combined indicate the appropriate contact for a dataset.
(R) Contact Identifier	INTEGER	Foreign Key from the Contact Table. This is one of two FK attributes and when combined indicate the appropriate contact for a dataset.
(R) Reference Data Set Primary Contact Flag	BOOLEAN	Indicates the contact is a primary contact.

2.4.4 Stakeholder Contact

Stakeholder Contact is a table used to determine the primary contact for a Stakeholder. It is assumed there can be more than one contact for a stakeholder.

Attribute Full Name	Data Type	Description
(R) Stakeholder Identifier	INTEGER	Foreign Key from the Stakeholder Table. This is one of two FK attributes. When combined, it indicates the appropriate contact.
(R) Contact Identifier	INTEGER	Foreign Key from the Contact Table. This is one of two FK attributes. When combined, indicates the appropriate contact.
(R) Stakeholder Primary Contact Flag	BOOLEAN	Indicates the contact as a primary contact.

2.4.5 Address

Address is a set of addresses for persons and organizations. The Data User Portal has functionality to insert Contact data, including addresses, into WA-Trans. The required fields below are filled using this functionality and must have values for the Data Provider Interface contact data entry/maintenance functions to work.

Attribute Full Name	Data Type	Description
(P) Address Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify an Address record within the database.
(P) Address City Name	VARCHAR (60)	Name of the city where the address is located.
(P) Address Zip Code	VARCHAR(10)	Zip code of address.
(P) Address Full Street Name	VARCHAR(125)	Full street name as defined by the contact.
(P) State Province	VARCHAR(50)	The state or Province

Attribute Full Name	Data Type	Description
(P) Country	VARCHAR(50)	The country
Address	CHAR(10)	Physical address or mailing address. This would be the number and not the street or road name.
Road Name	CHAR(50)	Name of the road in the street address, without the suffix and prefix information.
Address Suffix Type	VARCHAR(15)	Type of roadway, per US Postal Addressing Standards. Avenue, Street, Lane, Highway, Road, etc.
Address Suffix Direction	VARCHAR(10)	It is used to describe the road direction if incorporated into the end of the road name. N, NW, S, SW, SE, E, NE (e.g., Main St. SW)
Address Prefix Direction	VARCHAR(10)	N, NW, S, SW, SE, E, NE
Address Prefix Type	VARCHAR(15)	It is used to describe the road direction if incorporated into the beginning of the road name. N, NW, S, SW, SE, E, NE (e.g., SW Main Street).

2.4.6 Address Type

Address Type determines the function that an address can be used for. For example, this could be a mailing address or a business location (Domain examples: Mailing, Physical Location, Second Address).

Attribute Full Name	Data Type	Description
(R) Address Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify an Address Type record within the database.
(R) Address Type Name	VARCHAR(50)	Address short text used in application displays, reports, etc.
(R) Address Type Description	VARCHAR(300)	Detailed description of the address type.

2.4.7 Phone

Phone contains the phone numbers for persons (contacts), stakeholders and participating organizations.

Attribute Full Name	Data Type	Description
(P) Phone Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Phone record within the database.
(P) Phone Area Code	INTEGER	Area code for the phone number.
(P) Phone Prefix	INTEGER	First three digits of the phone number.
(P) Phone Suffix	INTEGER	Last four digits of the phone number.

Phone Extension	INTEGER	Phone extension, if applicable.
(P) Phone Type Identifier	INTEGER	Foreign Key from the Phone Type Table.

2.4.8 Phone Type

Phone Type is used to determine the type of phone number (Domain examples: Work, Mobile, Secondary Work, Home).

Attribute Full Name	Data Type	Description
(P) Phone Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Phone Type record within the database.
(P) Phone Type Name	VARCHAR(25)	Phone short text used in application displays, reports, etc.
(P) Phone Type Description	VARCHAR(100)	Detailed description of the phone type.

2.4.9 Stakeholder Phone

Stakeholder Phone indicates the appropriate phone for a stakeholder. A stakeholder can have more than one phone number.

Attribute Full Name	Data Type	Description
(R) Phone Identifier	INTEGER	Foreign Key from the Phone Table. This is an FK attribute and one of three key attributes. When combined, indicates the appropriate phone for a stakeholder.
(R) Stakeholder Identifier	INTEGER	Foreign Key from the Stakeholder Table. This is an FK attribute and one of three key attributes. When combined, it indicates the appropriate phone for a stakeholder.
(R) Stakeholder Phone Primary Flag	BOOLEAN	Indicates if this is the primary phone for this stakeholder contact.

2.4.10 Contact Phone

Contact Phone indicates the appropriate phone for a contact. A contact can have more than one phone number. We are not directly tracking the phone numbers for contacts, although this could be obtained through the stakeholder.

Attribute Full Name	Data Type	Description
(R) Phone Identifier	INTEGER	Foreign Key from the Phone Table. This is an FK attribute and one of three key attributes. When combined, indicates the appropriate phone for a stakeholder.
(R) Contact Identifier	INTEGER	Foreign Key from the Contact Table. This is an FK attribute and one of three key attributes. When combined, it indicates the appropriate phone for a stakeholder.
(R) Contact Phone Primary Flag	BOOLEAN	Indicates if this is the primary phone for this stakeholder contact.

Phone Extension	VARCHAR(4)	Extension of a contact phone.
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2.4.11 Email Address

Email Address contains an email address for a contact or organization. It is assumed there can be more than one email address for a contact, and several contacts may only be assessable through one company email address.

Attribute Full Name	Data Type	Description
(P) Email Address Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify an Email Address record within the database. This is one of two key attributes. When combined, it indicates the appropriate email for the contact.
(P) Email Address	VARCHAR(75)	Complete Email address.
(P) Contact Address Primary Flag	BOOLEAN	Indicates if this is the primary Email address for this contact.
(P) Contact Identifier	INTEGER	Foreign Key from the Contact Table. This is an FK attribute and one of two key attributes. When combined, it indicates the appropriate email address for the contact.

2.4.12 Contact Address

Contact Address indicates the appropriate street/ mailing address for a contact. A contact can have more than one address.

Attribute Full Name	Data Type	Description
(R) Contact Identifier	INTEGER	Foreign Key from the Contact Table. This is an FK attribute and one of three key attributes. When combined, it indicates the appropriate address for a contact.
(R) Address Type Identifier	INTEGER	Foreign Key from the Address Type Lookup Table. This is an FK attribute and one of three key attributes. When combined, it indicates the appropriate address for a contact.
(R) Address Identifier	INTEGER	Foreign Key from the Address Table. This is an FK attribute and one of three key attributes. When combined, it indicates the appropriate address for a contact.
Contact Address Primary Flag	BOOLEAN	Indicates if this is the primary Address for this contact.

2.4.13 Stakeholder Address

Stakeholder Address indicates the appropriate street/ mailing address for a stakeholder. A stakeholder can have more than one address.

Attribute Full Name	Data Type	Description
(R) Stakeholder Identifier	INTEGER	Foreign Key from the Stakeholder Table. This is an FK attribute and one of three key attributes. When combined, it indicates the appropriate address for a stakeholder.

Attribute Full Name	Data Type	Description
(R) Address Identifier	INTEGER	Foreign Key from the Address Table. This is an FK attribute and one of three key attributes. When combined, it indicates the appropriate address for a stakeholder.
Stakeholder Address Primary Flag	BOOLEAN	Indicates if this is the primary Address for this stakeholder.

2.5 Data Submittal and Data Provider Portal

The *Data Submittal and Data Provider Portal* section includes descriptive data specific to what a Data Provider will be submitting to WA-Trans. Much of this data is expected to eventually be maintained through an Internet interface. Some attribution is included to support Data Provider Portal functions.

2.5.1 Data Submittal Agreement

Data Submittal Agreement includes data about a specific provider's data and what the data structures are of interest for data submittal to WA-trans. For example, the accuracy and file types are text with multiple files and a range of accuracies possible.

Attribute Full Name	Data Type	Description
(R) Data Submittal Agreement Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a User Profile record within the database.
Provider Data Structure Name	VARCHAR(25)	Name created by a provider that will allow access of this information through the Data Provider Portal.
Meta Data File Name	VARCHAR(255)	Name of Metadata file expected to be submitted by the Data Provider.
Translation File Name	VARCHAR(255)	Name created by a provider that will allow selection of a specific translation by a provider through the Data Provider Portal.
Unique Identifier	BOOLEAN	Does the data provider maintain a perpetual unique identifier in their systems? Can there be a combination of attributes that act as a unique identifier?
Unique Identifier Description	VARCHAR(50)	Description of the provider unique identifier
Data Outside Jurisdiction	BOOLEAN	Will data provided include roads and or data outside of their jurisdiction?
Data Outside Jurisdiction Description	VARCHAR(500)	Description of roads, or data outside of jurisdiction.
Local LRS	BOOLEAN	Does the provider maintain an LRS in their systems?
Address Data	BOOLEAN	Does the provider maintain Address data in their systems?
City Data	BOOLEAN	Does the provider maintain all city data within their jurisdiction?
Crosswalk File Name	VARCHAR(50)	Name of the attributed crosswalk file. This is the file a provider fills in to help determine the mapping of local attributes names to WA-Trans attribute names.

Manage Retirements	BOOLEAN	Does the provider manage retirement of data? If they simply remove the data from their systems this is not considered managing retirement. WA-Trans is concerned with maintaining history and if a provider is doing this it is of interest.
Agreement Points	BOOLEAN	Does the provider have agreement points with adjoining jurisdictions, or is in the process of creating them?
Data Comments	VARCHAR(1000)	Comments related to the data a provider will be submitting.
Datum Identifier	INTEGER	Foreign Key into the Datum Table.
Coordinate System Identifier		Foreign Key into the Coordinate System Table.
Unit of Measure Identifier		Foreign Key into the Unit of Measure Table.
File Format Identifier		Foreign Key into the File Format Table.
Accuracy Level Identifier	INTEGER	Foreign Key into the Accuracy Level Type Table.
Stakeholder Identifier	INTEGER	Foreign Key into the Stakeholder Table.
Contact Identifier	INTEGER	Foreign Key into the Contact Table.

2.5.2 Data Submittal Mode

Data Submittal Mode relates the Mode Type Table with the Data Submittal Agreement Table to identify the different modes for which a provider may be qualified to submit data to WA-Trans. Each data submittal will be for only one mode, but some users may be qualified to submit data for more than one mode.

Attribute Full Name	Data Type	Description
(P) Data Submittal Mode Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a User Mode record within the database that relates to a User Profile.
(P) Data Submittal Agreement Identifier	INTEGER	Foreign Key into the User Profile Table.
(P) Mode Type Identifier	INTEGER	Foreign Key into the Mode Type Table.
Translation Identifier	INTEGER	Foreign Key into the Translation Table.

2.5.3 Datum

Datum describes the possible datum availability for providers who submit data to WA-Trans. This data will be used for the user interface and as an FK for the Data Submittal record. There is no need to include a datum that is not applicable to the pool of providers who are qualified to submit data to WA-Trans. Data submitted to WA-Trans will be primarily from Washington State.

Attribute Full Name	Data Type	Description
(R) Datum Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Datum record within the database.
(R) Datum Name	VARCHAR(30)	Name of the datum. This is the name that will appear in drop-down list boxes to be selected as the datum for data submittal.
(R) Datum Description	VARCHAR(30)	Description of the Datum.

2.5.4 Coordinate System

Coordinate System is a list of possible available coordinate systems that are appropriate for the data being submitted to WA-Trans. One of these coordinate systems will be identified as the projection of data being submitted to WA-Trans. This data will also be used for the Data User and Data Provider interface. Data submitted to WA-Trans will be primarily from Washington State.

Attribute Full Name	Data Type	Description
(R) Coordinate System Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Projection record within the database.
(R) Coordinate System Name	VARCHAR(40)	Name of the Coordinate System. This is the name the will appear in drop-down list boxes to be selected as the Coordinate System for data submittal.
(R) Coordinate System Description	VARCHAR(40)	Description of the Coordinate System.

2.5.5 File Format

File Format is a list of possible file formats for the data being submitted to WA-Trans. These formats will display in the Data Provider interface. In the Data Provider Portal they will be assigned to a file being submitted to WA-Trans.

Attribute Full Name	Data Type	Description
(R) File Format Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a File Format record within the database.
(R) File Format Name	VARCHAR(20)	Name of the file format. This is the name the will appear in drop-down list boxes to be selected as the file format for data submittal.

Attribute Full Name	Data Type	Description
(R) File Format Description	VARCHAR(50)	Description of the file format.

2.5.6 Unit of Measure

Unit of Measure is a list of possible available units of measure that are appropriate for the data being submitted to WA-Trans. One of these Units of Measure will be the unit of measure for the data being submitted to WA-Trans. This data will be used for the user interface and as an FK for a Data Submittal Agreement.

Attribute Full Name	Data Type	Description
(R) Unit of Measure Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Unit of Measure record within the database.
(R) Unit of Measure Name	VARCHAR(15)	Name of the unit of measure. This is the name the will appear in drop-down list boxes to be selected as the unit of measure for data submittal.
(R) Unit of Measure Description	VARCHAR(25)	Description of the unit of measure.
Unit of Measure Conversion Factor	DECIMAL(2,3)	Formula to be used if there is a need to convert provider values to a different unit of measure.

2.5.7 Accuracy Level Type

Accuracy Level Type is a list of accuracy levels for the data being submitted to WA-Trans. A value will be assigned to the Data Submittal Agreement for data providers.

Attribute Full Name	Data Type	Description
(R) Accuracy Level Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Accuracy Level record within the database.
(R) Accuracy Level	VARCHAR(20)	The accuracy level that can be assigned to a set of data.
(R) Accuracy Level Description	VARCHAR(50)	Description of the accuracy level file.

2.6 Transformation (Translation)

The *Transformation* section includes the information that can be used during the translation of provider data into the WA-Trans database. Translation Workspace names and Attribute mapping is included in this group.

2.6.1 Translation

Translation is information about each workspace created to transform data from a Data Provider's format to WA-Trans. A relationship to the attribute mapping can be found in the Submittal File Attribute Map Table.

Attribute Full Name	Data Type	Description
(R) Translation Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Translation record within the database.
(R) Translation Name	VARCHAR(100)	Name of the workspace used for translation. This is the name that will appear in drop-down list boxes to be selected workspace for data submittal.
(R) Translation Description	VARCHAR(500)	Description of the workspace.
(R) Translation Create Date	DATE	Date when the workspace was enabled to be used by the WA-Trans system.
Translation Edit Date	DATE	Date when a workspace was edited. This usually means the data being submitted has changed, or some other process affecting a working translation has changed.
(R) Translation File Path	VARCHAR(300)	Where the workspace is located including the server name.
(R) Stakeholder Identifier	INTEGER	Foreign Key into the Stakeholder Table.

2.6.2 Submittal File Attribute

Submittal File Attribute includes the attribute name(s) from a Data Provider's file schema. These attributes are specific to the file being submitted to WA-Trans. They use a specific workspace for translation of that file data to WA-Trans.

Attribute Full Name	Data Type	Description
(R) Submittal File Attribute Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Submittal File Attribute record within the database.
(R) Attribute Physical Name	VARCHAR(40)	Name of the attribute as used in the file being submitted to WA-Trans. It is used in the workspace for translation.
Attribute Logical Name	VARCHAR(75)	Logical name of the attribute that is the long version (some would say "readable" or "understandable" name) of the attribute's physical name.
Attribute Description	VARCHAR(500)	Description or definition of the attribute.

Attribute Full Name	Data Type	Description
Attribute Data Type	VARCHAR (25)	Data type of the attribute. It would be helpful if this was the data type description enabling an understanding of how this attribute will work in a SQL database.
Attribute Size	VARCHAR(10)	Size of an attribute in the form of number of characters for the longest possible value.

2.6.3 Submittal File Attribute Map

Submittal File Attribute Map is a table that joins the Submittal File Attribute, Translation, and WA-Trans Attribute information. The connection of the attribute mapping to a specific translation workspace is important.

Attribute Full Name	Data Type	Description
(R) WA-Trans Attribute Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Attribute Mapping record within the database.
(R) Translation Identifier	INTEGER	Foreign Key into the Stakeholder Table.
(R) Submittal File Attribute Identifier	INTEGER	Foreign Key into the Stakeholder Table.

2.6.4 WA-Trans Attribute

WA-Trans Attribute is a list of the attributes in the WA-Trans database that can be mapped from a provider's data. This is intended to help with the management and maintenance of the data provider processes in WA-Trans. It will be possible to maintain may other WA-Trans attributes for other purposes not yet defined.

Attribute Full Name	Data Type	Description
(R) WA Trans Attribute Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Unit of Measure record within the database.
(R) Server Name	VARCHAR(50)	Name of the Database Server
(R) Database Physical Name	VARCHAR(40)	Name of the Database
Database Business Name	VARCHAR(40)	
Table Identifier	INTEGER	
Table Physical Name	VARCHAR(50)	
Table Business Name	VARCHAR(50)	
Table Definition	VARCHAR(300)	

Attribute Full Name	Data Type	Description
Attribute Identifier	INTEGER	
Attribute Physical Name	VARCHAR(50)	
Attribute Business Name	VARCHAR(50)	
Attribute Definition	VARCHAR(5000)	
Attribute Data Type	VARCHAR(50)	
Attribute Null Indicator	BOOLEAN	
Attribute Character Length	SMALLINT	
Attribute Decimal Places	SMALLINT	

2.7 Tables and Attributes Holding

WA-Trans is a large project and we have been concentrating on creating a seamless connected road transportation network for the state. We are planning including other modes like Light Rail, Ferries and others. We are also planning to include events. The following tables are included in the WA-Trans database design, but are not currently being used in our research. As we add other modes and functions we will be refining the tables in this section. That being the case there may be areas below that are not as clear or mature as the previous sections.

2.8 Event Data

2.8.1 Event

Event is a narrative of events that occur along transportation segments. These events are based on a linear referencing system. Events can pertain to location regarding Federal Functional Class, Number of lanes, speed limits, structures, surface types and other data placed by reference to a linear referencing system.

Attribute Full Name	Data Type	Description
(R) Event Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify an Event Description record within the database.
(R) Event Local LRS Identifier	VARCHAR(15)	Identifier assigned to Transportation Segment Description by Mode Data Steward. This identifier would be assigned to a set of segments constituting a route name and not be a unique identifier for an individual segment. Examples: County Road Number, City Street Name (Main St.), State Route Number (005) etc.
(R) Event Full LRS Description	VARCHAR(25)	Unique identifier of the LRS that assures a distinction between segments that may have the same Local Identifier; e.g., Main St. This attribute allows for the creation of distinct routes when multiple providers are providing similar data. This field is created by WA-Trans

Attribute Full Name	Data Type	Description
		<p>concatenating the following fields together:</p> <ul style="list-style-type: none"> • FIPS State Code (2 characters) • StakeholderId (4 characters ONLY) • ModelId (2 characters only) • Local LRS Identifier (15 characters) (See Segment Description Local LRS Identifier above) <p>*SPECIAL NOTE: This schema requires /assumes the following:</p> <ul style="list-style-type: none"> • The Stakeholder specified will be the Owner of the physical infrastructure. • Leading zeros will be added to ID fields not yet 4 characters long (e.g., 1 becomes 0001, etc.). • We will have no more than 9999 Authorities, 99 Modes. <p>The entire structure of this field will be modified if higher numbers are needed.</p>
(R) Primary Flag	BOOLEAN	Indicates this is the preferred Event. Other similar events can be included in the database, but will be considered alternatives and not preferred.
(R) Provider Record Identifier	VARCHAR(9)	Unique identifier assigned by the Data Provider and used in their local systems. This identifier is stored in WA-Trans for reference to the original Data Provider attributes schema.
(R*) Event Begin Mile Point	DECIMAL(6,3)	Where an event begins along a route/line segment for route / mile point LRS.
(R*) Event End Mile Point	DECIMAL(6,3)	Where an event terminates along a route/line segment for route / mile point LRS.
(R*) Event Begin Address	VARCHAR(10)	Begin address number that is coincident with the beginning position of the specific event; e.g., 809. For address based events.
(R*) Event Begin Full Street Name	VARCHAR(125)	Begin full street name that is coincident with the beginning position of the specific event; e.g., Capital Blvd. SW. For address based events.
(R*) Event Begin Zip Code	VARCHAR(10)	Begin zip code that is coincident with the beginning position of the specific event; e.g., 98501. For address based events.
(R*) Event End Address	VARCHAR(10)	End address number that is coincident with the ending position of the specific event; e.g., 1009. For address based events.
(R*) Event End Full Street Name	VARCHAR(125)	End full street name that is coincident with the ending position of the specific event; e.g., Capital Blvd. SW. For address based events.
(R*) Event End Zip Code	VARCHAR(10)	End zip code that is coincident with the ending position of the specific event; e.g., 98504. For address based events.
(R*) Event Begin FIPS Left City Identifier	VARCHAR(5)	Based on segment direction, this identified the City on the left side of the beginning of the event. For address based events.
(R*) Event End FIPS Left City Identifier	VARCHAR(5)	Based on segment direction, this describes the City of the left side of the end of the event. For address based events.
(R*) Event Begin FIPS Right City Identifier	VARCHAR(5)	Based on segment direction, this describes the City at the right side of the beginning of the event. For address based events.

Attribute Full Name	Data Type	Description
(R*) Event End FIPS Right City Identifier	VARCHAR(5)	Based on segment direction, this describes the City at the right side of the end of the event. For address based events.
Event Begin Northing	DECIMAL(10,3)	Y-axis of a Cartesian grid system.
Event Begin Easting	DECIMAL(10,3)	X-axis of a Cartesian grid system
Event End Northing	DECIMAL(10,3)	Y-axis of a Cartesian grid system.
Event End Easting	DECIMAL(10,3)	X-axis of a Cartesian grid system.
(R) Event Create Date	DATE	Creation date of the data pertaining to the specified event in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Event Update Date	DATE	Date when the data pertaining to the specified event was last updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Event Validate Date	DATE	Date when the event was validated (verified) in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Event Retire Date	DATE	Date when the event was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Event Structure Local Code	VARCHAR(25)	Unique identifier assigned by the Data Provider and used in their local systems. This identifier is stored in WA-Trans for reference to the original Data Provider attributes schema.
Event Speed Limit Maximum Legal Speed	INTEGER	Legally defined maximum velocity for the section of segment between the specified "begin" mile point and "end" mile point (e.g., 55).
Event Speed Limit Maximum Legal Speed Unit	VARCHAR(3)	Defines the unit of measurement used for the speed limit. MPH - Miles per hour; KPH - Kilometers per hour
Event Federal Functional Class Code	CHAR(2)	Federal Functional Class code assigned to the event description.
Event Federal Functional Class Road Number	INTEGER	Number assigned to a portion of a transportation mode (generally roads) by the Federal government.
Event Non-motorized Width	VARCHAR(25)	Linear distance on the non-motorized section of the transportation mode. It is measured in a direction perpendicular to the direction of travel.
Event Non-motorized Traffic Level	VARCHAR(15)	Description of the level of non-motorized traffic using this segment.
Event Non-motorized Dedicated Flag	BOOLEAN	Indicates whether the non-motorized portion of the transportation mode restricts travel to only non-motorized traffic, or if it is a mixed mode transportation segment (i.e. any transportation mode may traverse section).

Attribute Full Name	Data Type	Description
		1 = Yes, Dedicated non-motorized travel only; 0 = No, Mixed mode.
Event HOV Lane Occupant Requirement	INTEGER	Minimum number of occupants who are required to be in a vehicle for that vehicle to travel in the HOV lane during the designated HOV time period.
Event HOV Lane Time Restriction	VARCHAR(50)	Time periods for which the HOV lane is restricted to HOV use only.
Event HOV Lane Use Indicator	VARCHAR(25)	Designates if the HOV Lane is a dedicated HOV lane at all times or if other types of travel are permitted.
Event HOV Lane Activation Date	DATE	Calendar date that the HOV lane began operating as an HOV lane.
Event Lanes Code	CHAR(1)	Code depicting the type of lane represented by a line segment.
Event Lanes Count	INTEGER	Number of lanes in the section of segment, from the specified "Begin mile point" to "End mile point".
Event Structure Local Name	VARCHAR(100)	Commonly used name of the structure under consideration.
Event Surface Width	DECIMAL (6,3)	Typically, the width of the runway or paved area used by aircraft.
Event Indian Reservation Road Indicator	VARCHAR(3)	Indicates whether this is a reservation road (Yes/No).
Event Indian Reservation BIA Road Indicator	VARCHAR(3)	Indicates whether this is a BIA recognized reservation road (Yes/No).
Event Indian Reservation Code	VARCHAR(3)	BIA code referring to the reservation and related to the reservation Name.
Event Indian Reservation Name	VARCHAR(25)	Name of reservation.
Event Indian Reservation Agency Code	INTEGER	BIA code referring to the agency and related to the agency name.
Event Indian Reservation Agency Name	VARCHAR(20)	Name of the reservation agency.
Event Indian Reservation BIA Functional Classification	INTEGER	The functional class related to the BIA road classification system.
Event Indian Reservation Federal Aid Funding Category	VARCHAR(50)	A funding category based on the Federal functional class of a particular road. The funding category indicates the percent of local matching funds required to meet the total necessary.
Structure Type Identifier	INTEGER	Foreign Key from the Structure Type Table. An FK which identifies the type of structure that is the "event" (e.g., tunnel, bridge, etc.).
(R) Surface Type	INTEGER	Foreign Key into the Surface Type Table. Identifies the type of surface

Attribute Full Name	Data Type	Description
Identifier		for the event.
(R) Event Type Identifier	INTEGER	Foreign Key into the Event Type Table. Identifies the type of event (e.g., HOV Lane, Non-Motorized lane speed limit structure, surface, etc.).
(R) Event Data Steward Identifier	INTEGER	Foreign Key that identifies the stakeholder who is the Data Steward for the event.
(R) Event Infrastructure Owner Identifier	INTEGER	Foreign Key that identifies the stakeholder who owns the infrastructure represented by the event.
(R) Mode Type Identifier	INTEGER	Foreign Key into the Mode Type Table that identifies the transportation mode for the event.
(R) Event Infrastructure Maintainer	INTEGER	Foreign Key that identifies the maintainer of the physical infrastructure of the structure, i.e. bridges, tunnels, etc.
Event Average Daily Traffic Volume	INTEGER	Amount of traffic counted or calculated for a particular point, expressed as a whole number.
Event Average Daily Traffic Source	VARCHAR(50)	Source of the traffic count represented by the Event Average Daily Traffic Volume.
Event Average Daily Traffic Year	CHAR(4)	Year that the Event Average Daily Traffic Volume was counted or calculated.
Event Average Daily Traffic Truck Percent	BYTE	Percent of the Event Average Daily Traffic Volume represented by trucks, expressed as a whole number.
(R) Reference Data Set Id	INTEGER	Foreign Key into the Reference Data Set Table. Refers to the original source dataset.
(R) Status Identifier	INTEGER	Foreign Key into the Status Table. Domain (e.g., Operational, Retired, Proposed, Closed)

2.8.2 Event Type

Event Type designates the nature of the event; e.g., Functional Class, Speed Limit, Lane Type, Non-Motorized, Indian reservation Road, Surface Type, Structure, etc.

Attribute Full Name	Data Type	Description
Event Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify an Event Type record within the database.
(R) Event Type Name	VARCHAR(25)	Name given to the nature of the event along a transportation mode; that is, a change in surface type, number of lanes, speed limit, lane type (HOV, pedestrian/bicycle), classification etc.
(R) Event Type Description	VARCHAR(255)	Narrative explanation of Type of event.

2.8.3 Surface Type

Surface Type contains information about the different categories of materials that may form the portion of the transportation mode. Examples include: asphalt, concrete, cinder, crushed gravel, etc.

Attribute Full Name	Data Type	Description
Surface Type Identifier	INTEGER	Surrogate Key. A sequential number is auto-generated by the database upon insertion of a record. It is used to uniquely identify a Surface Type record within the database.
(R) Surface Type Name	CHAR(1)	Name that identifies the type of surface to the Surface Type description (e.g., A = Asphalt or HMA, C = Concrete or PCCP, G = Gravel, D= Dirt, or other naturally occurring surface).
(R) Surface Type Description	VARCHAR(100)	Description of the surface type (e.g., gravel, concrete, asphalt, etc).

2.8.4 Structure Type

Structure Type contains information about the different categories of physical objects that may be located along a transportation mode. Examples include: Bridge, tunnel, etc.

Attribute Full Name	Data Type	Description
Structure Type Identifier	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Structure record within the database.
(R) Structure Type Name	VARCHAR(100)	Describes a structure found along the segment (e.g., bridge, tunnel, pedestrian overpass, etc.).
(R) Structure Type Description	VARCHAR(100)	Description of the structure type.

2.9 Railroad

2.9.1 Reference Point Rail

Reference Point Rail is descriptive data pertaining to discrete locations along rail lines (e.g., rail stations and rail crossing information).

Attribute Full Name	Data Type	Description
Reference Point Rail Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Reference Point Rail record within the database.
Reference Point Rail Station Name	VARCHAR(75)	Name of the rail station.
Reference Point Rail Crossing Code	VARCHAR(20)	Type of crossing - over, under, at grade.

Attribute Full Name	Data Type	Description
Reference Point Rail Public Private Crossing Indicator	VARCHAR(7)	Type of access/ownership of crossing – Public, Private, Pedestrian.
Reference Point Rail Non-Motorized Crossing Flag	BOOLEAN: Default ON Boolean	Indicates whether this is a non-Motorized rail crossing (Yes/No).
Reference Point Rail Warning Device	INTEGER	Code that identifies whether there is a sign, lights, or other types of devices (from the Federal Railway Administration Data).
Reference Point Rail USDOT Number	VARCHAR(7)	USDOT code for the railroad line.
Reference Point Rail Track Count	INTEGER	Number of tracks within the rail segment.
(R) Reference Point Rail Create Date	DATE	Date assigned to a reference point that indicates when the reference point data was created in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Rail Update Date	DATE	Date assigned to a reference point that indicates when the reference point data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Rail Validate Date	DATE	Date assigned to a reference point that indicates when the reference point data was validated (verified) in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Rail Retire Date	DATE	Date assigned to a reference point that indicates when the reference point data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the unique reference point associated with the rail terminal.

2.9.2 Segment Description Rail

Segment Description Rail is descriptive data pertaining to rail segments (i.e., the name of the rail, such as Operator Name, Track Class, etc.).

Attribute Full Name	Data Type	Description
Segment Description Rail Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Segment Description Rail record within the database.
Segment Description Rail Owner Name	VARCHAR(75)	Owner's name of the "line" or railroad company.
Segment Description Rail Owner FRA Code	VARCHAR(3)	Federal Railroad Administration code used to identify the rail owner.
Segment Description Rail Primary Operator Name	VARCHAR(75)	Name of the primary operator of the line.

Attribute Full Name	Data Type	Description
Segment Description Rail Primary Operator FRA Code	VARCHAR(3)	Federal Railroad Administration code used to identify the primary rail operator.
Segment Description Rail WUTC Line Identifier	VARCHAR(10)	Code for railroad segments based upon the WA Utilities and Transportation Commission.
Segment Description Rail From Station	VARCHAR(20)	Name of origination station, generally a city or town name. Goes with WUTC Line Identifier.
Segment Description Rail To Station	VARCHAR(20)	Name of destination station, generally a city or town name. Goes with WUTC Line Identifier.
Segment Description Rail Passenger Flag	BOOLEAN	Identifies whether a regularly scheduled passenger train uses the line.
Segment Description Rail Recreation Flag	BOOLEAN	Indicates whether the rail line is used for recreation. (Yes/No)
Segment Description Rail Type	VARCHAR(10)	Describes the nature of rail segment. This could be part of the mode code. Possible values include: siding, mainline, industrial spur
(R) Segment Description Rail Create Date	DATE	Date assigned to the Segment Description Rail that indicates when the segment description was created in WA-Trans. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Description Rail Update Date	DATE	Date assigned to the Segment Description Rail that indicates when the segment data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Description Rail Validate Date	DATE	Date assigned to Transportation Segment Rail Description that indicates when the segment data was validated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Description Rail Retire Date	DATE	Date assigned to the Segment Description Rail that indicates when the segment data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
(R) Segment Description Identifier	CHAR(36)	Foreign Key into the Segment Description Table. Identifies the segment description that is given for this rail segment.
(R) TrackClassID	INTEGER	Foreign Key to the Track Class Table. Identifies the Track Class description.

2.9.3 Track Class

Track Class contains data related to the class of a rail line.

Attribute Full Name	Data Type	Description
TrackClassID	INTEGER	Surrogate Key. Sequential number auto-generated by the database upon insertion of a record. It is used to uniquely identify a Track Class record within the database.

Attribute Full Name	Data Type	Description
(R) Track Class Code	CHAR(1)	A 1-letter code assigned to Track Class.
(R) Track Class Description	VARCHAR(200)	Narrative description of the one character code that describes the Track Class.
Maximum Allowable Freight Speed	VARCHAR(3)	Maximum speed for a freight train allowed on this Track Class.
Maximum Allowable Passenger Speed	VARCHAR(3)	Maximum speed for a passenger train allowed on this Track Class.

2.10 Aviation

2.10.1 Segment Description Airport

Segment Description Airport is descriptive data pertaining to airport segments (e.g., runways).

Attribute Full Name	Data Type	Description
Segment Description Airport Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Segment Description Airport record within the database.

2.10.2 Reference Point Airport

Reference Point Airport contains data pertaining to airport features of the transportation mode at the specified end point.

Airport is an area of land or water used –or intended to be used – for the landing and takeoff of aircraft, including its buildings and facilities. For the purpose of these instructions, the term "airport" includes airports, heliports, seaplane bases, stolports (short takeoff and landing airports), glider ports, ultra-light flight parks, and balloon ports (except where a distinction is made in the text). (From: <http://www.faa.gov/ARP/publications/acs/5200-35.pdf>)

Attribute Full Name	Data Type	Description
Reference Point Airport Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Reference Point Airport record within the database.
(R) Airport Identifier	VARCHAR(4)	4-character code that identifies the airport.
(R) Instrument Approach	BOOLEAN	Airport is either equipped or not equipped to handle an instrument approach.
(R) ARC Code	VARCHAR(4)	Size, weight, speed, and length of wings from tip to tip. (Can be used to determine maximum size of aviation vehicle that can utilize airport.)
(R) Elevation	DECIMAL(6,1)	Vertical distance above or below a reference ellipsoid. For WSDOT, this reference ellipsoid is designated WGS84.
(R) Elevation Unit	VARCHAR(10)	System of measurement used for the elevation of the airfield; e.g.,

Attribute Full Name	Data Type	Description
		feet or meters.
FAA Classification	VARCHAR(30)	<p>Federal Aviation Administration Classification.</p> <p>One of the five basic airport service levels that describes the type of service that the airport is expected to provide to the community at the end of the 5-year planning period. The service levels also represent funding categories for the distribution of Federal aid.</p> <ul style="list-style-type: none"> • PR Commercial Service – Primary • CM Commercial Service – Non-primary • CR Commercial Service Airport that also serves as a reliever (included with CM in statistical summaries) - RL Reliever Airport; GA General Aviation Airport.
State Classification	VARCHAR(10)	Type of airport (e.g., cargo, transport, general, etc).
(R) Airport Name	VARCHAR(100)	Actual name of the airport (e.g., Sea-Tac).
(R) Control Flag	BOOLEAN	Indicates if an Airport is controlled (i.e. has a tower) or not. 1 = Controlled (yes); 0 = Uncontrolled (no)
(R) AWAS Flag	BOOLEAN	Automated Weather Advisory System. Bit flag that indicates if the airport on record has this system or not. 1 = Yes; 0 = No
(R) Owner	VARCHAR(30)	Actual owner of the airport (i.e., private owner, state, county, etc).
Terminal Flag	BOOLEAN	Bit flag that indicates whether or not the airport on record has a terminal or not. 1 = Yes; 0 = No
Airport Use	VARCHAR(15)	<p>PU = Public Use. A public use airport is an airport available for use by the general public without a requirement for prior approval of the owner or operator. The owners of public use airports cannot impose operational restrictions on the use of the airport.</p> <p>Restrictions such as "prior permission required" or "use at your own risk" or "contact the airport manager prior to landing" are not permissible at public use airports.</p> <p>PR = Private Use. A private use airport is one available for use by the owner only or by the owner and other persons authorized by the owner only. The owners of private use airports do not have to reiterate in a remark in data element 110 that the airport is "private use" or that "prior permission is required".</p>
(R) Reference Point Airport Create Date	DATE	Date assigned to a reference point that indicates when the reference point data was created in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Airport Update Date	DATE	Date assigned to a reference point that indicates when the reference point data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Airport Validate Date	DATE	Date assigned to a reference point that indicates when the reference point data was validated (verified) in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.

Attribute Full Name	Data Type	Description
Reference Point Airport Retire Date	DATE	Date assigned to a reference point that indicates when the reference point data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
(R) Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the reference point for the airport terminal.

2.11 Ferries

2.11.1 Reference Point Ferry

Reference Point Ferry is descriptive data pertaining to ferry terminals.

Attribute Full Name	Data Type	Description
Reference Point Ferry Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Reference Point Ferry record within the database.
Reference Point Ferry Name	VARCHAR(50)	Name of the ferry terminal.
(R) Reference Point Ferry Create Date	DATE	Date assigned to reference point that indicates when reference point data was created in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Ferry Update Date	DATE	Date assigned to reference point that indicates when reference point data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Ferry Validate Date	DATE	Date assigned to reference point that indicates when reference point data was validated (verified) in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Reference Point Ferry Retire Date	DATE	Date assigned to reference point that indicates when reference point data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
(R) Reference Point Identifier	CHAR(36)	Foreign Key into the Reference Point Table that identifies the ferry terminal.

2.11.2 Segment Description Ferry

Segment Description Ferry contains data pertaining to the ferry transportation mode.

Attribute Full Name	Data Type	Description
Segment Description Ferry Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Segment Description Ferry record

Attribute Full Name	Data Type	Description
		within the database.
Segment Description Ferry Hours Not Available	VARCHAR(30)	Hours of ferry service not available.
Segment Description Ferry System-Wide Restriction	VARCHAR(30)	Descriptions of restrictions per ferry (e.g., Smoking, parking, hazardous goods, etc.).
Segment Description Ferry Route Load Restriction	VARCHAR(30)	Ferry vehicle weight and height and width restrictions.
Segment Description Ferry Route Length Restriction	VARCHAR(30)	Ferry vehicle length restrictions.
Segment Description Ferry Route Crossing Time	DECIMAL(3,0)	The time it takes the ferry to travel the designated ferry route.
(R) Segment Description Ferry Create Date	DATE	Date assigned to the Segment Description Ferry that indicates when the segment description was created in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Description Ferry Update Date	DATE	Date assigned to the Segment Description Ferry that indicates when the segment data was updated in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Description Ferry Validate Date	DATE	Date assigned to Transportation Segment Ferry Description that indicates when the segment data was validated (verified) in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
Segment Description Ferry Retire Date	DATE	Date assigned to the Segment Description Ferry that indicates when the segment data was retired in the WA-Trans database. This date is only used to track internal processes in WA-Trans and does not indicate any provider road status dates.
(R) Segment Description Identifier	CHAR(36)	Foreign Key into the Segment Description Table.

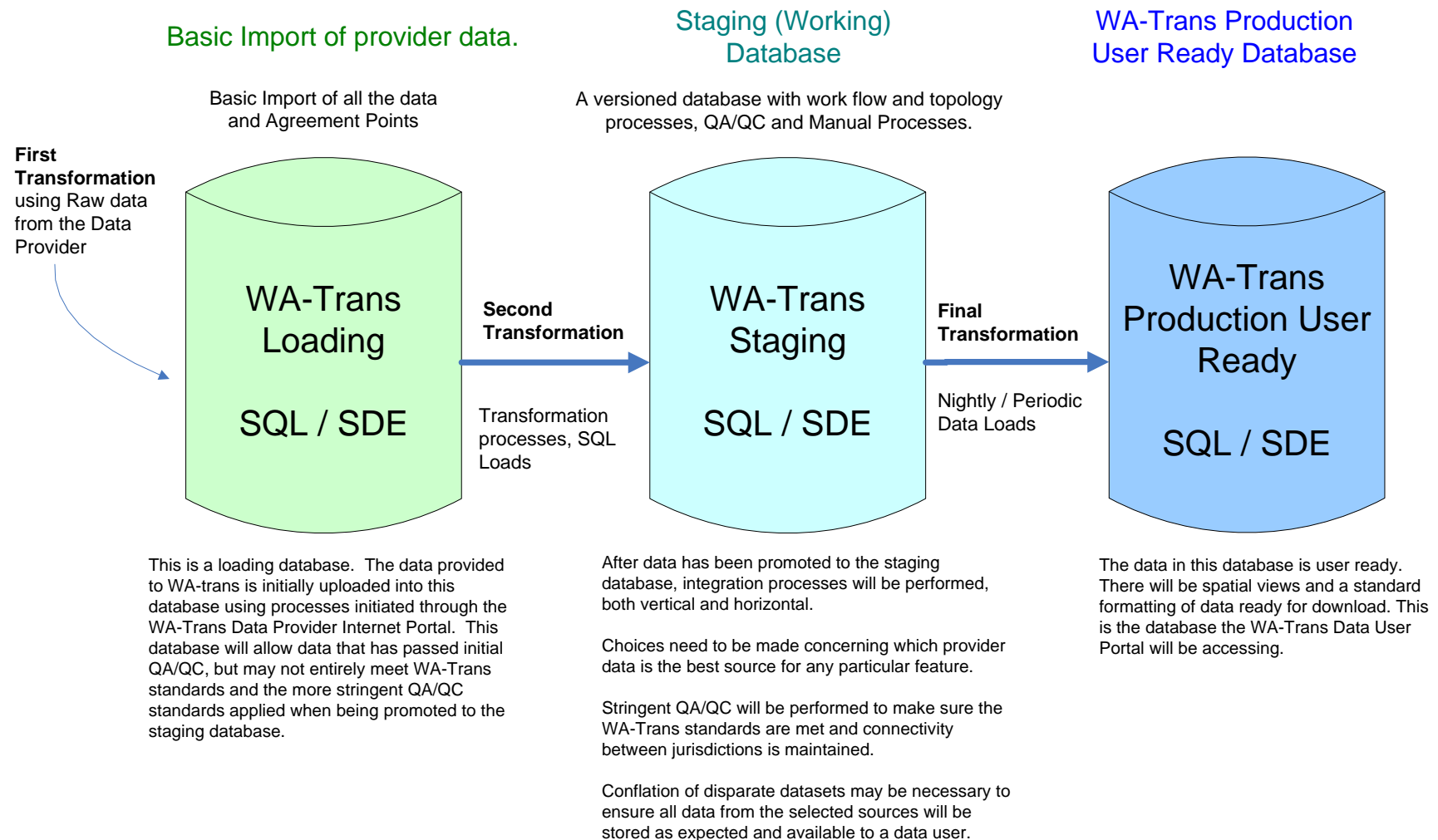
2.12 Metadata

Metadata files submitted to WA-Trans will eventually be stored in the database. This will enable the retrieval of metadata information to be placed in WA-Trans metadata files and help with WA-Trans Data Portal functionality. In addition, WA-Trans will be storing feature level metadata.

We have not developed these tables yet and hope to leverage others experiences in this area.

Appendix A: Database Architecture

Each of the three databases diagramed below will require slightly different designs and some fields specific to a database, to assist with the necessary functions. Although the designs of each database will be a bit different the core design and structure is shared between all three databases.



Appendix B: Minimum Required Attributes from a Data Provider

Non-graphic Data Elements

NOTE: Required attributes are still being researched. Just as we get a list we think is final, a software process or Data Provider Portal requirement changes things. There are some software processes which determine, if it is required all records must have a value. This is not true for an Address suffix or prefix for example.

Certain minimum data attributes will need to be supplied by the Data Provider. A set of minimum data will be required for each mode of transportation. Currently, the only minimum attribute submission standards available are for Road transportation data. Other modes such as Light Rail, Water Ports, Ferry, and Trails will be included in this document as they are developed.

Table 1 (below) lists the minimum attributes required for Road data submission to WA-Trans.

- The left column is the name of the attribute.
- The middle column is the data type in WA-Trans.
- The right column is a description of the attribute.

Note: Table 1 includes the minimum attributes required for submitting Road data that does not include address ranges. When submitting Road data that includes address ranges, Table 1 and Table 2 list the minimum attributes required for data submittal.

Table 1: Route Data

This table shows the minimum required attributes when providing Route data to WA-Trans *without* address ranges.

Attribute Full Name	Data Type	Description
Route Description Local LRS Identifier	VARCHAR (15)	Identifier assigned to Transportation Segment Description by Mode Data Steward (if applicable). Examples: County Road Number, City Street Name (Main St.), State Route Number (005) etc.
Route Description Begin Mile point	DECIMAL (6,3)	Mile point describing the beginning of a segment as it relates to the segment description.
Route Description End Mile point	DECIMAL (6,3)	Mile point describing the ending of a segment as it relates to the segment description.
Left City Identifier	VARCHAR (5)	If possible the Federal Information Processing Standard number that identifies the city to the <i>left</i> of the line segment. If FIPS is not managed by the provider, their local city identifier.
Right City Identifier	VARCHAR (5)	If possible the Federal Information Processing Standard number that identifies the city to the <i>left</i> of the line segment. If FIPS is not managed by the provider, their local city identifier.
Road Address Description Full Street Name	VARCHAR (15)	Full name of street.

Table 2: Road Address Data (Address Ranges)

This table shows the minimum required attributes when providing Road Address data to WA-Trans. It is understood that for any given segment not all address attributes will have a value, e.g. an address may not have a prefix type or prefix direction value.

Note: Table 2 must be included in addition to the Table 1 attributes.

Attribute Full Name	Data Type	Description
Road Address Description Name	VARCHAR(50)	Name of the road without the prefix and/or suffix.
Road Address Description Left Low Address	DECIMAL (6,3)	Describes the left low address of a road segment as it relates to the Road Segment Description, assigned by the Road Data Steward.
Road Address Description Left High Address	VARCHAR (255)	Describes the left high address of a road segment as it relates to the Road Segment Description, assigned by the Road Data Steward.
Road Address Description Left Zip Code	DECIMAL (10,3)	Zip code of address to the left of the line segment.
Road Address Description Right Low Address	VARCHAR (30)	Describes the right low address of a road segment as it relates to the Road Segment Description, assigned by the Road Data Steward.
Road Address Description Right High Address	VARCHAR (3)	Describes the right high address of a road segment as it relates to the Road Segment Description, assigned by the Road Data Steward.
Road Address Description Right Zip Code	VARCHAR (3)	Zip code of address to the right of the line segment.
Road Address Description Name Prefix Direction	VARCHAR (5)	N, NW, S, SW, SE, E, NE
Road Address Description Name Prefix Type	VARCHAR (5)	It is used to describe the road direction if it is incorporated into the beginning of the road name. N, NW, S, SW, SE, E, NE (e.g., SW Main Street).
Road Address Description Name Suffix Type	VARCHAR (5)	Type of roadway, as per US Postal Addressing Standards. Avenue, Street, Lane, Highway, Road etc.
Road Address Description Name Suffix Direction	VARCHAR (5)	Use to describe the road direction if it is incorporated into the end of the road name. N, NW, S, SW, SE, E, NE (e.g., Main St. SW)

Minimum Required Graphic Data Elements

Minimum required graphic data elements include:

- File type (e.g., Shape file, coverage)
- Projection (e.g., Washington State Plane North or Washington State Plane South)
- Datum (e.g., NAD1983/HARN)

Appendix C: Loading Database Segment Tables

The Loading database is only designed to receive data during the data submittal process. Change detection takes place immediately after a successful load of data into the WA-Trans Loading database and the data is immediately moved to the Staging database. See Appendix A.

During the loading (data submittal process) no segments are created. This section does not make an attempt to describe the data loading process in any detail, just show the segment Geometry and Segment tables combined and as it exists in the WA-Trans Loading database.

Segment Geometry in the WA-Trans Loading database.

Segment Geometry stores the segment geometry, allowing for multiple geometries within WA-Trans.

Attribute Full Name	Data Type	Description
(R) Segment Geometry Identifier	CHAR(36)	Surrogate Key. A GUID generated by database processes upon insertion of a record. It is used to uniquely identify a Segment Geometry record within the database.
(R) OBJECTID	INTEGER	Identifier applied by GIS Software.
(R) SHAPE	INTEGER	Reference to the Geo-Spatial aspects of the data.
Segment Length	DECIMAL(10,3)	Linear measurement of the segment from one end point to the other as determined by the Data Provider. All measurements will be in US Survey Feet.
(R) Row Load Date	DATE	Date this record was loaded in a WA-Trans Database. This date is a WA-Trans process date. A "Process" date is used to help various data functions in WA-Trans e.g. Change detection, Change management, data QA/QC.
(R) Original Submittal Date	DATE	The date this record was first submitted to and included in WA-Trans.
Segment Geometry Physical Create Date	DATE	Date when the physical infrastructure, represented by the segment, was created / built. <u>This information comes from the provider.</u>
Segment Geometry Physical Inception Date	DATE	Date when the physical infrastructure, represented by the segment, was operational for use. <u>This information comes from the provider.</u>
Segment Geometry Physical Retire Date	DATE	Date when the physical infrastructure of the segment was removed from operational use. <u>This information comes from the provider.</u>
Provider Record Identifier	VARCHAR(9)	Unique identifier assigned by the Data Provider and used in their local systems. This identifier is stored in WA-Trans for reference to the original Data Provider attributes schema and used during the Change Detection process. This attribute can be formed using a combination of several provider attributes, resulting in a unique ID.
Data Steward Identifier	INTEGER	Foreign Key that relates to the entity, who is the Data Steward.
Status Identifier	INTEGER	Foreign Key into the Status Table.
Reference Data Set Id	INTEGER	Foreign Key into the Reference Data Set Table. Refers to the original source dataset.

Attribute Full Name	Data Type	Description
Segment Identifier	CHAR(36)	Foreign Key into the Segment Table that identifies the segment to which the geometry is related.
Horizontal Accuracy Measurement Method Identifier	INTEGER	Foreign Key identifier that relates to the table containing the horizontal accuracy and measurement method applicable to this segment.
Infrastructure Owner Identifier	INTEGER	Foreign Key that relates to the owner of the physical infrastructure.
Infrastructure Maintainer Identifier	INTEGER	Foreign Key that relates to the entity responsible for maintaining the physical infrastructure.
Mode Type Identifier	INTEGER	Foreign Key from the Mode Type Table. Indicates the appropriate transportation mode for this record.
Geometry Change Detection Type	INTEGER	Identifies the type of change for the geometry characteristics of this record.
Attribute Change Detection Type	INTEGER	Identifies the type of change for the attribute characteristics of this record.
Matching Segment Geometry Identifier	CAR(36)	This attribute is used during change detection to identify segment geometry already in WA-Trans with incoming segment geometry from a data provider. If there is no matching segment geometry the assumption is: This is likely new segment geometry added by the provider since the last time their data was updated to WA-Trans.